METHOD OF SILICON CARBIDE MONOCRYSTALLINE BOULE GROWTH

ABSTRACT

A method of growing a silicon carbide single crystal on a silicon carbide seed crystal in an inert gas environment includes the step of raising the seed crystal temperature to a growth temperature T_{seed} and raising the temperature of source material to a growth temperature T_{source} that is lower than T_{seed} to define a thermal gradient therebetween. The process also requires maintaining constant seed temperature and constant source temperature throughout substantially the entire growth period of the single crystal. The growth period begins when the seed crystal and source material reach T_{seed} and T_{source}. Another step requires changing only the pressure of the inert gas during the growth period to control the growth rate of the crystal rather than changing any temperatures to control the growth rate once growth of the single crystal has started.